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SUBJECT OF INVESTIGATION

The Study

on

the Pathogenesis

of

Bacillary Dysentery

RESPONSIBLE INVESTIGATOR

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D-I-S-T-R-I-B-U-T-I-O-N

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It would be considered that the comparison of certain disease and others which reveal similar or common symptoms may be sometimes an important key to clarify the pathogenesis of the disease.

One of characteristic symptoms of the bacillary dysentery is diarrhea with bloody stools. There are found some kinds of diseases of which main symptom is diarrhea with bloody stools, in which the bacillary dysentery is included. It is not rarely in Japan, that patients of not bacillary dysentery have been diagnosed as bacillary dysentery, only by the reason that the patient has had diarrhea with bloody stool. It would be presumed to be significant in order to clarify the pathogenesis of the bacillary dysentery, that clinical observation and patho-physiological investigation of such diseases are tried in comparison to those of the bacillary dysentery.

In the report, attempts to compare clinical pictures and patho-physiological findings of these diseases and the bacillary dysentery will be carried out. Helminthic diseases such as Schistosomiasis and Strongyloidiasis, protozoal infections such as Amebiasis, and bacterial infections such as Salmonellosis and pathogenic Escherichia coli infection, belong to the group of the diseases. Besides, in the recent years, some kinds of halophilic bacteria have been noted as new agent of intestinal infection which reveals dysentery-like symptom. There have been not few cases of infection by halophilic bacteria, which were admitted to isolation hospital as patients with bacillary dysentery. It is believed the comparison of the infection by halophilic bacteria and the bacillary dysentery has an important significance not for the solution of the dysentery problem in Japan, but for the comprehension of the pathogenesis of bacillary dysentery.

In the paper, a case following by infection of halophilic bacteria is demonstrated, and comparative study with the bacillary dysentery is tried.

CASE: 37 years, male

PRESENT ILLNESS:

The patient drunk a few liters of beer and ate pieces of sausage and dried fish at a small party of the evening of 18th of July 1963. He went to sleep at 11.30 PM. He awake 1 AM 19th of July, owing to severe abdominal cramp, and he excreted large amount of loosy, undigested stools. From the onset to 3 AM, he had 6 times diarrhea, of which stool character was yellow brown and almost watery. At the same time, nausea appeared and he vomited several times.

He was admitted to Komagome Hospital at 3 AM of the 19th July.

HOSPITAL COURSE:

On admission, he had a temperature of 38°C and his pulse rate was 98. Color of face appeared a little pale, but no cyanosis recognized. Tongue and skin were dried. The patient was moderately dehydrated. Soon after admission, a liter of Ringer's solution and 5% glucose solution was given intravenously and 1 Gram Chloramphenicol was intramuscularly injected. After admission, he had a few times diarrhea, of which stool consisted of mainly blood and mucus. He complained of severe thirst and abdominal cramp, and he had no appetite.

Afternoon of the 19th, general findings much improved rapidly; namely, fever subsided, abdominal pain and diarrhea disappeared and appetite recovered.

The next morning, he recovered markedly, had neither complain nor diarrhea, and he had almost normal appetite.

He became almost quite well within 2 days, and he was discharged on the 5th day of illness. His chart is indicated in Figure A.

BACTERIOLOGICAL EXAMINATION:

The bacteriological examinations were carried out on stools of the 1st day of illness, using SS agar, B.T.B. agar and pepton water including 4%, 7% and 10% NaCl. After over night incubation, neither

Shigella, nor Salmonella, nor pathogenic Escherichia coli was detected; however, marked turbidity was recognized on 4% NaCl including pepton water. A kind of halophilic bacteria was detected from the pepton water.

PROPERTY of the BACTERIA:

Gram negative rods

Motility	+
M. R.	+
V. P.	−
Production of H_2S	−
Liquefaction of Gelatin	+
Fermentation of	
Arabinose	−
Xylose	−
Adonit	−
Rhamnose	−
Glucose	+
Galactose	+
Mannose	+
Fructose	+
Sucrose	−
Maltose	+
Lactose	−
Trehalose	+
Salicin	−
Raffinose	−
Dextrin	+
Starch	+
Inulin	−
Glycogen	+

SEROLOGICAL CLASSIFICATION:

The group of pathogenic halophilic bacteria was classified into over than 12 types according to O-antigen. The bacteria of this case belong to O-type 2.

ANTIBIOTIC-SENSITIVITY:

Minimum Growth Inhibition Concentration (mcg/ml)

Chloramphenicol	less than 1.56 mcg/ml
Tetracyclin	6.25
Erythromycin	3.12
Kanamycin	50.0
Streptomycin	50.0
Penicillin	over than 100

DISCUSSION:

Onset and symptoms of the infection following by halophilic bacteria are similar to those of foodpoisoning by infection of Salmonella rather than to those of the bacillary dysentery, except diarrhea with bloody stools, which is rarely seen in Salmonellosis, but characteristic for the bacillary dysentery. However, the appearance of bloody stools in the infection by halophilic bacteria is somewhat different from that seen in the bacillary dysentery. During the acme of the latter, stools consist of pus, mucus and blood. The amount of pus is usually larger than that of blood; color of blood is fresh red. In stools of the former, on the contrary, pus is scarcely seen and color of blood is partially dark red including coagulated blood.

The sigmoidoscopical examinations could find no pathological changes in the mucuous membrane of the rectum and sigmoid of patients with halophilic bacteria infection.

It could be assumed from these facts, that blood in stools of patients with halophilic bacteria infection may result from the small intestine, and lesions may occur mainly in the small intestine, not in the large bowel.

It was confirmed by the recent bacteriological works, that the halophilic bacteria belongs to the species of vibrio. However, clinical picture of the infection by this vibrio is not similar to that of the infection by cholera vibrio, but common partially with that of the bacillary dysentery. The cause of the discrepancy between clinical feature and kind of microorganisms is not clear. It is believed to be necessary in order to solve the problem how intestinal infections may occur, the comparative study will be carried out clinically and microbiologically on these infections. In the next report, not only the comparison of clinical observations and character of microorganisms, but histo-pathological findings will be mentioned.

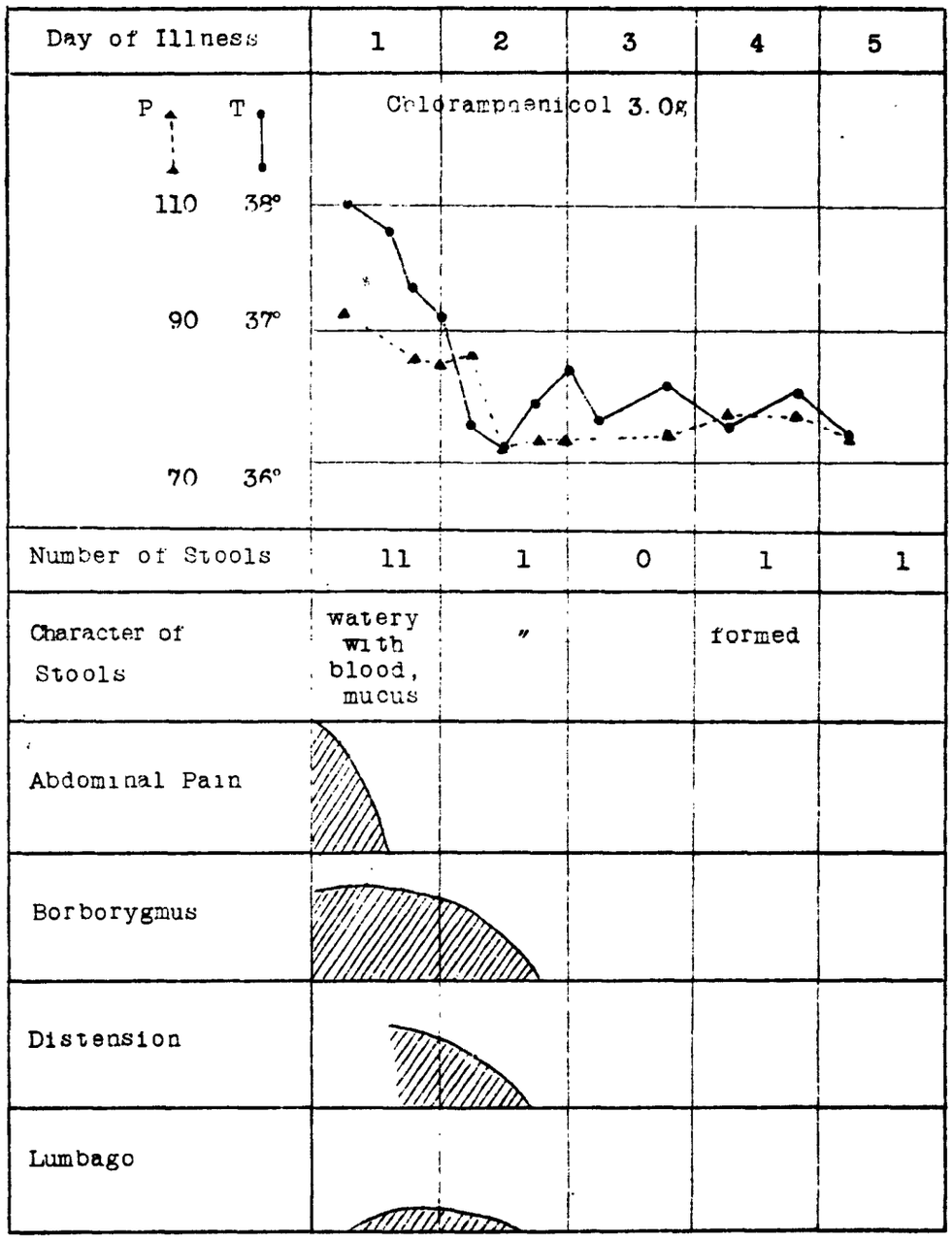
Day of Illness
1
2
3
4
5
P
T
Chloramphenicol 3.0g
110
38°
90
37°
70
36°
Number of Stools
11
1
0
1
1
Character of Stools
watery with blood, mucus
"
formed
Abdominal Pain
Borborygmus
Distension
Lumbago

Fig. A